

# DECADE COUNTER USING ONLY ARDUINO

February 20, 2016

## 1 AIM

To build a decade counter using arduino

## 2 Display circuit diagram

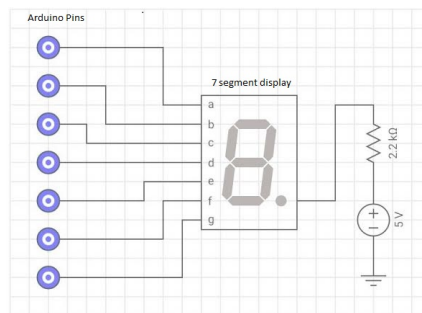


Figure 1: This is the data sheet of Seven Segment Display.

## 3 Arduino circuit diagram

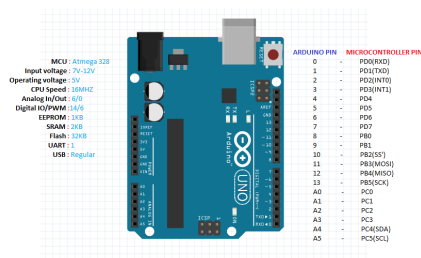
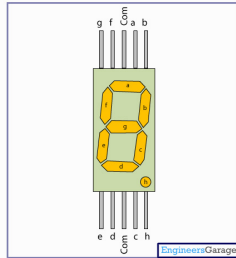


Figure 2: Arduino-uno.

## 4 Display



## 5 Explanation

The flip flops have been simulated in the arduino as two cascaded D-latches. The first latch is enabled by complement of enabled by complement of clock while second latch is enabled by clock. This functions as a positive edge-triggered flipflop triggered by rising edge of the clock that has been generated.

we find out the different pins of the seven segment display that should glow for each digit. Then we arrive at a logic function for determining the state of each pin based on the four pins that are used to represent each digit. The output to the pins of the seven segment display is given based on these logic functions.

We use clock also as an input to the flip flop module along with the data input. Clock stays high for 0.5 seconds and low for 0.5 seconds. We use delay function to decide the width of the clock pulse. We can also set a different time period using delay function if required.